

What is claimed is:

1. An oil filter comprising:

a housing main body having an oil inlet passage and an outlet passage;

5 a cover detachably attached to the housing main body on a vertically lower side thereof and having a recessed portion that opens toward a housing main body side;

10 an inner tubular member disposed in the recessed portion of the cover so as to be movable into and out of the recessed portion;

a seal member interposed between the inner tubular member and the cover so as to provide a seal therebetween;

15 a biasing unit for urging the inner tubular member in the direction to protrude from the recessed portion of the cover; and

20 a filter element disposed in an oil flowing space defined between the housing main body and the cover for filtrating oil introduced thereinto;

wherein when the cover is in a state of being attached to the housing main body, the inner tubular member is pushed down into the recessed portion of the cover against a bias of the biasing unit.

25

2. An oil filter according to claim 1, wherein the total volume of the cover and the inner tubular member when the inner tubular member protrudes maximumly from the cover is set larger than the volume of oil remaining in a space between the housing main body and the cover upon removal of the cover.

30

3. An oil filter according to claim 1, wherein the filter element is detachably attached to the inner tubular member.

5 4. An oil filter according to claim 1, wherein the cover is threadedly engaged with the housing main body.

5. An oil filter according to claim 1, wherein the inner tubular member comprises a tubular wall and a
10 partition wall closing an end of the tubular wall, the inner tubular member partitioning the oil flowing space into upper and lower oil collecting chambers located above and below the inner tubular member, at least one of the tubular wall and the partition wall
15 of the inner tubular member being provided with a communication hole for providing communication between the upper and lower oil collecting chambers.

6. An oil filter according to claim 5, wherein the
20 volume of the lower oil collecting space when the inner tubular member projects maximumly from the cover is set larger than the volume of oil remaining in the housing main body and the cover upon removal of the cover.

25

7. An oil filter according to claim 6, wherein the communication hole is formed in the inner tubular member at the position thereof corresponding to the lowermost position of the lower oil collecting chamber
30 when the cover is removed from the housing main body and turned upside down so as to allow an open end of the recessed portion of the cover to face vertically downward.

8. An oil filter comprising:

a housing main body having an inlet passage and an outlet passage;

a cover detachably attached to the housing main
5 body and having a recessed portion that opens toward a housing main body side;

a partition member disposed in the recessed
portion of the cover so as to be movable into and out
of the recessed portion and partitioning a space
10 between the cover and the housing main body into a filter chamber on a housing main body side and an oil suction chamber on a bottom side of the cover;

a seal member interposed between the partition
member and the cover to provide a seal therebetween;

15 a biasing unit for urging the partition member in the direction to increase the volume of the oil suction chamber;

a filter element disposed in the filter chamber for filtrating oil introduced thereinto; and

20 a communication passage for providing communication between the oil suction chamber and the oil filter chamber;

wherein when the cover is attached to the housing main body, the partition member is pushed down
25 into the recessed portion of the cover against the bias of the biasing unit.

9. An oil filter according to claim 8, further comprising a check valve that is disposed in the
30 communication passage and opens when the volume of the oil suction chamber increases.

10. An oil filter according to claim 9, further comprising an oil draining device for allowing the oil suction chamber to open to the outside arbitrarily.

5 11. An oil filter according to claim 10, wherein the oil draining device comprises a valve mechanism that opens when the oil suction chamber is urged to decrease in volume.

10 12. An oil filter according to claim 11, wherein the valve mechanism comprises a check valve.

13. An oil filter according to claim 8, wherein the volume of the oil suction chamber when the partition
15 member is moved maximumly toward an open end side of the recessed potion of the cover is set larger than the volume of oil remaining in the housing main body and the cover upon removal of the cover.

20 14. An oil filter according to claim 8, wherein the filter element is detachably attached to the inner tubular member.

15. An oil filter according to claim 8, wherein the
25 cover is threadedly engaged with the housing main body.

16. An oil filter according to claim 8, wherein the communication passage has an end that is positioned so as to immerse into oil remaining in the cover and the
30 housing main body upon removal of the cover.

17. An oil filter according to claim 16, wherein the communication passage comprises an annular chamber

formed between an opening portion of the housing main body and an outer circumferential surface of the cover, a first connecting passage formed in the housing main body to provide communication between a lower portion of the housing main body at which oil remains and the annular passage, and a second connecting passage formed in the cover for providing communication between the annular passage and the oil suction chamber.

10

18. An oil filter according to claim 17, further comprising a check valve that is disposed in the second connecting passage and opens when the oil suction chamber increases in volume.

15

19. An oil filter according to claim 18, wherein the first connecting passage connected at one of opposite ends to the annular passage extends therefrom so as to slant downward toward the other of the opposite ends.

20

20. An oil filter comprising:

a housing main body having an oil inlet passage and an outlet passage;

a cover detachably attached to the housing main body on a vertically lower side thereof and having a recessed portion that opens toward a housing main body side;

an inner tubular member disposed in the recessed portion of the cover so as to be movable into and out of the recessed portion;

a seal member interposed between the inner tubular member and the cover so as to provide a seal therebetween;

a biasing unit for urging the inner tubular member in the direction to protrude from the recessed portion of the cover; and

5 a filter element disposed in an oil flowing space defined between the housing main body and the cover for filtrating oil introduced thereinto;

wherein when the cover is in a state of being attached to the housing main body, the inner tubular member is pushed down into the recessed portion of the
10 cover against a bias of the biasing unit; and

wherein the cover has an oil collecting portion at a bottom side outer circumferential periphery thereof.

15

20

25

30